

In-Use Stationary Diesel Agricultural Engines

What is an in-use stationary diesel agricultural engine?

An in-use stationary diesel agricultural engine is a diesel-fueled engine used 12 or more months in the same location for the purposes of growing crops or raising fowl or other animals. An estimated 8,000 to 10,000 of these engines are currently operated in California, primarily in the Central Valley. These engines range from less than 25 to greater than 750 horsepower in size. Most are used to power irrigation pumps and wind machines. They may also be used to generate power, especially in remote locations or during electrical power failures.

"New" and "newly purchased used" stationary diesel agricultural engines are already subject to the Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines <http://www.arb.ca.gov/regact/statde/statde.htm>. Similarly, "portable" diesel agricultural engines are already subject to the ATCM for Diesel Particulate Matter from Portable Engines Greater Than 50 Horsepower <http://www.arb.ca.gov/diesel/portdiesel.htm>. Existing or "in-use" stationary diesel agricultural engines are currently unregulated; however, both the Air Resources Board (ARB or the Board) and local air quality management and pollution control districts (air districts) are considering regulatory control measures for these engines.

Why are control measures necessary?

Control measures are necessary to reduce emissions of diesel particulate matter (PM) and oxides of nitrogen (NO_x) that cause adverse health effects for Californians. California's in-use stationary diesel agricultural irrigation pump engines, by themselves, emit an estimated 570 tons of diesel PM and 7,700 tons of NO_x annually. Most of these emissions occur in the summer growing season.

The ARB identified diesel PM as a toxic air contaminant (TAC) in 1998. Exposure to diesel PM may result in both cancer and non-cancer health effects. Non-cancer health effects may include eye and lung irritation, allergic reactions in the lungs, asthma exacerbation, blood toxicity, immune system dysfunction, and developmental disorders. NO_x has been shown to have the following adverse health effects in humans: respiratory irritant, immunosuppressant, and asthma exacerbation. Although the ARB is considering control measures that primarily address diesel PM emission reductions, the agency will try to maximize potential NO_x emission reductions as well. The ARB is also working with air districts on specific regulations to reduce NO_x emissions from in-use stationary diesel agricultural engines.

Who would be affected by in-use stationary diesel agricultural engine control measures?

California farmers, ranchers, and universities or other institutions with programs operating stationary diesel agricultural engines would be affected by control measures. In addition, the control measures could have indirect impacts on electric power providers, fuel suppliers, and engine manufacturers, dealers, and rental agencies.

How will control measures be developed?

As part of control measure development, the ARB staff will gather information and comments about the number, size, location, operation, and emissions of stationary diesel agricultural engines. Staff will also evaluate a variety of diesel PM and NOx emission reduction technologies and strategies as well as their associated costs, environmental, and other impacts. As a result of this analysis, owners and operators are likely to have several compliance options from which to choose, including: engine replacement with an electric motor, spark-ignited engine, or compliant diesel engine; engine retrofit with add-on control devices; the use of natural gas, propane, verified biodiesel, or other alternative fuels; or possible alternative methods to achieve emission reductions.

Throughout the control measure development process, ARB staff will work with the Agricultural Advisory Committee on Air Quality <http://www.arb.ca.gov/ag/agadvisory/agadvisory.htm>, Diesel PM Agricultural Working Group, Agricultural Energy Subcommittee, air districts, environmental and citizen groups, and other interested parties. Public consultation meetings and workshops will be held to obtain suggestions and comments about draft regulatory proposals.

To be notified of meetings, workshops, publications, and hearings regarding the control measure, please join the electronic list serve or contact one of the persons listed below. The Board Hearing to consider adoption of control measures is tentatively planned for fall 2005.

For more information or to participate in the control measure development process:

Please visit the web site at <http://www.arb.ca.gov/diesel/ag/inuseag.htm>; join the list serve for electronic notification of control measure events and activities at <http://www.arb.ca.gov/listserv/inuseag.htm>; or contact Barbara Cook at (916) 323-0440 (e-mail: bcook@arb.ca.gov).

Diesel Agricultural Engines (<http://www.arb.ca.gov/diesel/ag/ag.htm>)

California's Diesel Risk Reduction Program (<http://www.arb.ca.gov/diesel/dieselrrp.htm>)